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New Polyphonies: Score Streams, Improvisation and Telepresence

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In 2008, I began creating networked “score streams” that are displayed dynamically on computer screens and interpreted by improvisers. These works are not fully notated, single-author compositions but instead resonate with the many methods devised over the past half-century in composer-improviser traditions, where works by individuals are understood as catalysts for profoundly collaborative real-time acts of creation. I conceive these networked scores as streams of possibilities and convergences that improvisers can dip into and out of as they construct music together, with the score as partner.

Convergence is a key piece of this picture because I developed these scores for telematic performances. Since 2006, I have participated in six telematic concerts, some across continents with substantial audio delay, and others linked within a few hundred miles using Internet2 networks and Stanford University’s JackTrip software, with audio latency at nearly imperceptible levels [1]. Along with many collaborators, I have used these concerts to explore not only how well we can perform together across distances, but even more important, how telepresence might inspire new methods and conceptions of music making. I created many conventional paper scores for these events, but in addition, I soon began experimenting with score streams (built with Cycling 74’s Max/MSP software) out of a sense that they make a provocative pairing with the unique qualities of the telematic, improvisatory stage.

One obvious example is that because each musician’s screen can display a different part, the score stream can establish and shift patterns of convergence and divergence within and

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Fig. 1. Percussionist Nathan Hubbard and pianist Dhiren Panikker in Winfred Smith Hall, University of California, Irvine, performing Polyphonic Embrace, a score stream composed by Michael Dessen, along with bassist Mark Dresser and trumpeter Edwin Harkins, who are performing at the University of California, San Diego, 2009. The two sites are linked through high-bandwidth Internet2 connections, and the large screen presents telematic video created by John Crawford while the smaller screens show unprocessed video of each performance site. Latent Potentials concert, 13 December 2009. (© Michael Dessen. Photo © Mariangeles Soto-Diaz.)
across different performance sites. In a
telematic environment, where sensations of
distance and intimacy become especially
charged compositional parameters, this
networking and routing capability of computer-driven scores opens up rich
possibilities. The same is true for timing techniques: Not only can screen displays indicate pulses, but through visual objects such as horizontal sliders, they can suggest durations in myriad ways, such as synchronizing complex and unpredictable sequences of materials for
subgroups of improvisers to work with. Such functions are central to many exist-
ing methods that use conventional paper scores and performative cues, but they take on new meanings and potentials in a telepresent, improvisatory environment that involves human choices and interac-
tions across remote sites in tandem with precomposed content generated algo-
rithmically by the computer program.

From one angle, such methods could be seen as computerized extensions of “conduction” or “sound painting,” to bor-
row terms from, respectively, Lawrence “Butch” Morris and Walter Thompson, two well-known artists who have each
established elaborate visual conducting vocabularies for real-time composition with ensembles of performers. Yet, in
my case the absence of a human per-
former as authority figure creates a very
different psychological environment for the improviser, who instead is (ideally)
conversing in a non-hierarchical way with
the visual notations as well as the other
performers [2]. From another angle, my score streams are informed by the
many notational systems that have been
created by composers/improvisers from
jazz and other experimental music tra-
ditions, which include custom pictorial
languages as well as different approaches
to conventional staff-based notations. As
an improviser myself, those histories are a natural influence, especially the
scores I have played by mentors, peers and collaborators. At the same time, un-
like paper scores, score streams take a
unique visual form in each performance,
even while they contain intricately pre-
designed content. In this way, they are
a natural extension of the craft of com-
posing notations for improvisers, since
they visually embody the same alchemy of precomposed and emergent form that
improvisers themselves so often seek.

Since the 1990s, improvisation has grown into a vibrant academic field in the
United States and Europe, but in my view this makes it all the more urgent
to remember that the conceptual and
methodological groundwork for these
practices was established decades earlier
in non-academic communities, many
with precious few resources or infra-
structural support. Many early texts on experimental music have documented
the histories of what George Lewis has termed “Eurological” innovations [3],
while other scholarship on “Afrological”
trajectories of experimental music has
also been on the rise recently, including
Lewis’s own book on the Association for
the Advancement of Creative Musicians,
_A Power Stronger than Itself_ [4], among
many other works. Along with today’s increasing access to musicians’ own writ-
ings, interviews and above all their cre-
ative output, we are seeing in ever greater
detail how the last century of musical expl-
oration into improvisation and open
forms is not a series of parallel, discreet traditions but rather a complex tapestry of transcultural dialogue and innova-
tion. This tricky terrain, since it is all
too easy in writing about improvisation to
embrace overly simple or utopian dis-
courses about its power or to exagger-
ate the limited impact of music on our
world’s seemingly infinite problems. But
at the same time, I think that those of us
who have been genuinely moved by these
bodies of musical work, who are aware of the sacrifices that others have made
in order to enact such collective rituals of performance, cannot help but keep
a hopeful eye out for new openings and
new ways of understanding the legacies (literally, “gifts”) embodied in these prac-
tices we inherit.

One of my recent score streams, a
quartet performed in December 2009
between San Diego and Irvine, CA [5], is
titled _Polyphonic Embrace_ (Figs 1 and 2), in
reference to Roy Ascott’s work _Telematic
Embrace_, as well as to polyphony as a meta-
phor for the dialogic nature of both com-
opositional and networking technologies.
During the months that I was composing
and programming this piece, I found my-
self drawn to the isorhythmic motets of
Guillaume Dufay. Revisiting these sounds
after many years of immersion in more
contemporary music, I was struck by how
Renaissance rhythmic notation is a highly
complex, elegant system, yet also more
ambiguous and open than we typically as-
sume. I was similarly overwhelmed by Du-
fay’s mastery of isorhythmic techniques,
with their intricate mathematical propor-
tions coexisting alongside a sublime sen-
sitivity for flow and line.

I became especially immersed in the
famous motet _Nuper Rosarum Flores_,
which Dufay composed in 1436 to con-
secrate the completion of the Florence
cathedral. As I headed into the telematic
concert featuring _Polyphonic Embrace_, in a
modern techno-shrine auditorium filled
with computers, audio, video and networking gear, I struggled to imagine the opening celebration of that Florentine monument to 15th-century technology, which after over a hundred years of construction finally culminated in Filippo Brunelleschi’s spectacular dome made up of more than 4 million bricks. How did it feel, singing Dufay’s archetypic counterpoint in that space, surely with a cathedral-induced latency to rival any modern telematic concert? Just as Medieval musicians could not have envisioned how polyphony would flower in later centuries into new tonal and rhythmic forms, and just as Thomas Edison could not imagine how sound-recording technology would enable John Coltrane to syncretize sounds from India, Africa and Indonesia with music of the African American church, bebop and the European avant-garde into a body of work of deep and global resonance, so we cannot possibly envision what new experiences might emerge as digital networking technologies collide with new and old musical practices over the coming century. But as we continue mining the musical potentials of digital networking, whether in telematics, score streams or infinite other forms, the legacies of our past century’s improvised music traditions can help remind us what is at stake in our own performance practices, as they signal us down unknown pathways into the riches of new polyphonies.

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References and Notes
2. Although it is not currently part of my own project, it is also enticing to imagine programming a score stream that, like George Lewis’s Voyager (George Lewis, Voyager Disk Union-Avant CD-014 [1992]) and other innovative works of interactive computer music with improvisers, might converse with an ensemble by drawing on an extensive database of visual and orchestrational possibilities in response to individual performers’ real-time choices.
5. This performance was part of a telematic concert titled Latent Potentials, which took place within the 2009 Digital Arts and Cultures conference at the University of California, Irvine, and featured Mark Dresser (bass) and Edwin Harkins (trumpet) in San Diego and Nathan Hubbard (percussion) and Dhiren Panikker (piano) in Irvine. I am deeply grateful to them and also to Jason Robinson and Adnan Marquez-Borbon, who performed my first score stream in April 2009.

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Michael Dressen is a composer-improviser who performs on the slide trombone and computer. He is active with various ensembles as a leader or collaborator, and his music can be heard on labels including Clean Feed, Cuneiform and Circumvention Music. He is a faculty member at the University of California, Irvine, where he recently co-founded a new MFA program in Integrated Composition, Improvisation and Technology.
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